

3. On some new and little-known Spiders of the Genus *Argyrodes*, Sim. By the Rev. O. P. CAMBRIDGE, M.A., C.M.Z.S., &c.

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(Plates XXVIII.—XXX.)

The Spiders described in the present paper have been received at various times during the last few years from widely distant exotic regions—South America, East Indies, Ceylon, South Africa, Madagascar, Samoa Island, and Amboina; and I now beg leave to record my thanks to those kind friends who have either collected them for me or sent them to me, viz. Mr. Frederick Bond, Major Julian Hobson (H.M.S. Staff Corps, Bombay), Professor Traill (Univ. Aberdeen), Mr. G. H. K. Thwaites (Botanic Gardens, Ceylon), Mr. Henry Rogers (of Freshwater, Isle of Wight), the Rev. J. Whitmee (of the Samoa Islands), Mr. H. H. B. Bradley (of Sydney, N.S.W.), Capt. F. W. Hutton (of New Zealand), Mr. J. P. Mansel Weale (of South Africa), and Mr. R. H. Meade (of Bradford, Yorkshire).

Few Spiders are equal to those of the genus *Argyrodes* (and none exceed them) in the brilliancy of their hues. Some of them look like drops of burnished silver suspended in their snares; and one of those here recorded, *Argyrodes scintillulana* (p. 332), resembles a bit of jet studded with diamonds. Their structure also is of a very marked and distinctive kind. The abdomen is subject to a greater or less abnormal development of the posterior extremity, but varying in the two sexes; and the caput (in the male sex) is almost invariably developed into a form which makes some of them resemble very closely some species of the genus *Walckenaëra* (Bl.). The fore extremity of the caput is produced and split into two lobes or segments by a more or less deep transverse indentation or cleft. There is, however, a very marked and constant difference between these two genera in respect of the position of the eyes. In *Argyrodes* no eyes are ever found on the lower segment of the caput, while in *Walckenaëra* the eyes of the fore-central pair are always placed either in front of it or at its extremity. Another very obvious characteristic of *Argyrodes* is the great length and slenderness of the first two pairs of legs, though in this respect, as well as in the development of the abdomen, *Argyrodes* is far surpassed by the Spiders of an allied and, in some respects, still more curious genus, *Ariamnes*, Thor. (*Ariadne*, Dol.). The adult females of some (perhaps all) species of *Argyrodes* are subject to the apparently adventitious addition to their genital process of a bright, transparent, reddish, resinous-looking accretion. This often gives an abnormal appearance to the genital aperture; and it has been mistaken by Mr. Blackwall for part of the process itself (*vide* description of *Epeira cognata*, Bl., Proc. R. Irish Acad. 1877, 2nd ser. vol. iii. pp. 17, 18). I feel, however, quite convinced that

this accretion forms no part (properly speaking) of the genital process, though in what way it is formed it is difficult to say; probably it is an exudation from the genital organs, which hardens on coming into contact with the air, and so adheres to the process in its outward passage. I have noticed it in several species; but it is by no means invariably found in all the individuals of a species. This abnormal development greatly obscures its real structure, and considerably lessens the value of the genital process of *Argyrodes* as a criterion (so valuable in general) of specific distinctness.

Little appears to be known yet of the habits of this curious group of Spiders. So far as observations have been made, they live in their own irregular snares, spun among the outskirts of the snares of large Epeirids. When travelling in Palestine some years ago, I met with the type of the genus (*Argyrodes epeiræ*, Sim.) in abundance near the Sea of Tiberias, in the outskirts of the webs of *Cyrtophora opuntia*, Duf.; its pretty little pear-shaped egg-cocoons were also found suspended in the same position. Out of numerous cocoons brought home, almost all were infested by a minute hymenopterous parasite, the perfect forms of which emerged at different times during the following summer. There does not appear to be any great variety in the form of the egg-cocoon of the different species, those of several which I have received being very nearly alike, excepting in size.

The known species of *Argyrodes* are now becoming rather numerous—about 29 species, in addition to the 21 new ones here described, having been already characterized; probably many more will be discovered when greater attention is given to them by collectors in exotic regions. Several of the most curious of those now described were found among débris of the snares of some large Epeirids, having evidently been bottled along with the latter but not specially noticed or recognized at the time by the collectors.

Fam. THERIDIIDES.

Genus ARGYRODES, Sim.

ARGYRODES FLAVESCENS, sp. n. (Plate XXVIII. fig. 1.)

Adult male, length rather more than $1\frac{1}{2}$ line, that of the female being rather over $2\frac{1}{2}$ lines.

The fore part of the caput of the male is produced and elevated, and is divided by a transverse cleft into two lobes, of which the upper one is the strongest. The colour of the cephalothorax, as well as of the palpi, falces, maxillæ, labium, and sternum, is yellow, tinged with orange; the anterior portion of the lobes into which the caput is produced is clothed with short coarse hairs.

The eyes are placed four on the summit of the upper lobe of the caput, forming nearly a square; and on each side, at a considerable distance below, a little behind the cleft which divides the two lobes, is another pair, the eyes of which are contiguous to each other.

The legs are long, slender, 1, 2, 4, 3, those of the first pair being much the longest. They are of a deep blackish-brown hue, with the

two basal joints and the hinder extremity of the femora yellow, each one of the femora having a single annulus of the same colour. The tarsi are of a pale hue; and all the legs are furnished with short fine hairs.

The *palpi* are moderately long; the cubital joint is strong, somewhat clavate, and double the length of the radial, which is of a blunt-pointed form, and adheres closely to the base of the palpal organs; the digital joints are large, of an oval form, with their convex sides directed towards each other; the palpal organs are compact, and not very complex.

The *falces* are long, not very strong, but projecting forwards.

The form of the *maxilla*, *labium*, and *sternum* is normal.

The *abdomen* has its hinder extremity considerably produced into a large somewhat cylindrical prominence, rounded at its extremity; it is of a dull clay-yellow hue, with a black spot at the end of the prominent portion, and another stronger one just above the spinners, which are placed about halfway between the fore and hinder extremity of the abdomen. Near the middle of the upperside are two silvery-white spots in a transverse line, and two others behind them, wider apart, one on each side of the produced portion.

The female resembles the male in general colours and markings; but the legs are shorter, the cephalothorax wants the elevated bilobed anterior part of the caput, and the abdomen is of a different shape, being gradually elevated to a great height, and forming, when looked at in profile, a nearly isosceles triangle whose base is much shorter than its sides. The silvery markings also on the abdomen are larger and more numerous, varying, however, a little in their size and form, that represented in figure 1c showing their greatest extent.

This pretty Spider is quasiparasitic, living in the webs of some Epeirid, though I do not know of what species. It appears to be an abundant species, numerous examples of both sexes having been sent to me at different times from Ceylon by Mr. G. H. K. Thwaites.

ARGYRODES CONCINNA, sp. n. (Plate XXVIII. fig. 2.)

Adult male, length to the spinners $1\frac{1}{2}$ line, and to the apex of the abdomen 2 lines.

This species is allied to *Argyroides epeiræ*, Sim., but easily distinguishable by the form of the caput, and also by the form and pattern of the abdomen.

The inferior lobe of the fore part of the caput is almost as strong as the superior one; its extremity is rather upturned; and the cleft between the two is nearly obsolete, as, excepting at the base of the cleft, the two lobes are in contact with each other.

The cephalothorax, legs, and palpi are yellow-brown.

The *legs* are long and slender, 1, 2, 4, 3; those of the first pair exceed three times the length of the Spider itself; and the anterior part of the tibiae and femora of this pair is strongly suffused with dark reddish brown; their armature consists of fine hairs only.

The *palpi* are very similar to those of *A. epeiræ*; but the structure of the palpal organ differs a little.

The *abdomen* has its upperside drawn out or elevated into a long tapering or conical form, and very slightly curved, the apex being subacute. It is of a yellow-brownish hue, the underside suffused with black-brown; a dark, central, blackish stripe tapering to a line occupies the upperside, and ends in a short transverse spot or blotch close to the apex; on each side of this central stripe is a more or less broad and tolerably even-edged, silvery longitudinal band; and in some examples there are irregular traces of silvery markings on the sides of the abdomen.

It is probable that the darker portions of the abdomen will be found in well-preserved examples to be of a deeper hue than that here mentioned, all the examples I have examined having a somewhat faded appearance in the abdomen.

Examples of this very distinct species were contained in Professor Traill's Amazons collection.

It is possible that this may be the male of *Argyrodes lugens*, Cambr., inasmuch as all the examples of that Spider were *females*, and all of the present are *males*, and all were mixed together in the collection. There is, however, no such similarity of form, either in the abdomen or its pattern, as would lead one to conclude without great doubt that both belong to one species. I have therefore thought it best to describe them at present as distinct from each other, leaving it to future observations to decide whether they be identical or not.

ARGYRODES SAMOENSIS, sp. n. (Plate XXVIII. fig. 3.)

Adult male, length $\frac{1}{9}$ of an inch; female rather larger.

This Spider is also nearly allied to *Argyrodes epeiræ*, Sim., but is quite distinct from it, differing both in the pattern on the abdomen and in the form of the caput.

In the present Spider the two lobes of the caput are equally robust, and are shorter than in *A. epeiræ*; the extremity of the anterior lobe is rather enlarged and very obtuse, clothed (as in other species) with hairs directed backwards and meeting those directed forwards from the posterior lobe over the cleft between the two; the cleft in the present species is broader, but less deep, than in *A. epeiræ*. A comparison, however, of fig. 3 (Plate XXVIII.) with the figure given of *A. epeiræ* (fig. 3 a, Plate XXVIII.) will show at once these structural differences between the two species.

The colour of the cephalothorax and legs is yellow-brown; and the palpi are similar, excepting that the digital joints are of a deep reddish black-brown hue.

In respect of the palpi and palpal organs there is a strong similarity to *A. epeiræ* and others, though the structures of the palpal organs, when examined carefully, show some differences.

The *legs* (relative length 1, 2, 4, 3)—first two pairs long and slender, but not excessively so, and clothed with fine hairs only.

The *falces*, similar in colour to the cephalothorax, are rather shorter than those of *A. epeiræ*.

The *abdomen* is less elevated than in that species, and the profile-line of the upperside is more strongly and regularly curved. It

may be described as of a deep rich black-brown colour, marked with four very large somewhat triangular patches of a bright silvery hue; or, in those examples where the silvery areas preponderate, these areas may be taken as the ground-colour on which are very plainly and distinctly marked a broad, even-edged, longitudinal, deep-black-brown central band from the fore extremity of the upperside to the apex, another less broad from the apex to the spinners, and a third as nearly as possible bisects each side, running from the spinners into the band on the upperside; all these bands merge in the general black-brown hue of the underside of the abdomen. In front of the spinners (on the underside) are the two usual silvery spots in a transverse line. It is probable that a series of examples would show some slight imperfection in the continuity of these abdominal bands, though from the three examples examined (one male and two females) I should expect to find the abdominal pattern above described a tolerably constant and strong specific character. From the above three examples there does not appear to be very much, if any, difference in colours or pattern between the two sexes.

A male and two females of this Spider were received several years ago from the Rev. J. Whitmee, by whom they were found in the Samoa Islands.

ARGYRODES NEPHILÆ. (Plate XXVIII. figs. 4, 4 *a*, 4 *b*, 4 *c*, 4 *d*, 4 *f*.)

Argyrodes nephilæ, Tacz. Hor. Soc. Ent. Ross. ix. p. 51.

Adult male, length $\frac{1}{14}$ of an inch; female rather larger.

The cephalothorax of this brilliant little Spider is of a dark blackish brown; that of the female is of ordinary form; but that of the male has the caput considerably elevated and produced forwards, where it is divided into two lobes by a deep transverse cleft or fissure; the inferior lobe is much the smallest. The exact form of this part of the caput is represented as nearly as possible in fig. 4, Plate XXVIII.; no lengthened description of this characteristic portion of structure would avail to distinguish it so accurately from other species nearly allied.

The eyes of the fore central pair are the largest of the eight, and are placed in a transverse line on each side, at the fore extremity of the caput; behind these and lower down, at a little distance behind the base of the cleft, are the hind-central eyes, while at about the same distance lower down again, and almost in a line with the others on each side, are the lateral pairs, the eyes of each of which are contiguous to each other.

The *legs* are long, but not excessively so, slender, furnished with hairs only, of a dull yellowish hue; the anterior portions of the femora and tibiæ (of those of the female at least) suffused with dark brown. In the only adult male I have seen, the legs were unicolorous.

The *abdomen* is short, but elevated into a very high conical form, its height being distinctly greater than its length; in some examples the height is greater than in others, and the apex of the cone sharper. It is of a glistening silvery metallic hue; from the middle of the anterior

extremity on the upperside it is bisected by a tapering black stripe, which ends at the apex of the cone; in the males this stripe is merely a short black line from which one or two vein-like branches issue obliquely on each side. The underside is black, or else black-brown deepening into black on each side; the margins of this black portion are well defined, dentated, and extend a little way up the sides. The dentation of the margins differs in the sexes, as will be seen from the figures given; in about a dozen examples of the female but very slight variation was apparent in the character of this dentation in that sex. On each side underneath, a little way in front of the spinners, are two round, shining, silvery spots in a transverse line.

The *palpi* of the male are in general appearance very like those of *A. epeiræ*, Sim., and others; the cubital joints are tumid and clavate, the radials short and spreading; the digitals are large, with a strong prominence or lobe towards their extremity on the inner side. The palpal organs are moderately complex; and at their fore extremity is a rather prominent process, whose termination is bifid or distinctly cleft.

An adult male and females of this Spider were contained in a collection of Spiders made in the Amazons of South America by Professor Traill, to whose kindness I am indebted for them. I have but little doubt that it is the Spider described by Prof. Taczanowski, *l. c. supra*.

In the form of the caput *Argyrodes nephilæ* is very similar to *A. rostrata*, Bl. (Seychelle Islands); the anterior lobe of this latter species, however, is stouter, and the eyes of the hind-central pair are nearer to the summit of the occiput (*vide* Plate XXVIII. fig. 4 *a'*). The abdomen also is of quite a different form—less elevated, very obtuse at the apex, and with a distinct pattern on the sides (fig. 4 *b'*), this part in *A. nephilæ* being immaculate.

ARGYRODES ARGENTATA, sp. n. (Plate XXVIII. fig. 5.)

Adult male, length $\frac{1}{10}$ of an inch; female considerably larger.

This Spider is very closely allied to *Argyrodes nephilæ*, Tacz., resembling it in general form, colours, markings, and appearance. It is, however, considerably larger; the form of the caput differs in the more curved shape of its anterior segment, which is also rather longer in proportion to the posterior one; the hind central pair of eyes are also placed further up on the occipital part of the posterior segment, being thus considerably removed from a straight line with the lateral pair and fore-central eye on each side.

The abdomen also is less elevated, and its conical point more obtuse; it is of a similar brilliant silvery hue; its upper point slightly tipped with brown, and a slender longitudinal central black or deep-brown line on the upperside, sometimes enlarged in an angular form at one or two points, from each of which issues a short vein-like line. The central line or stripe seldom appears to reach the conical point of the abdomen, and does not differ in form or strength in the sexes.

The *legs* are long, but not excessively so; and their relative length is 1, 2, 4, 3; they are of a pale yellow colour, slightly tinged with

yellow-brown towards the fore extremity of the femora and tibiae, and also on the genual joints.

The *palpi* of the male are very similar in form and structure to those of *Argyrodes nephilæ*; but the structure of the palpal organs differs. They are similar to the legs in colour, the digital joints and palpal organs being of a dark yellow-brown hue.

The form of the *abdomen* in the female differs a little from that of the male (*vide* Plate XXVIII. figs. 5 *a*, 5 *b*); the underside in both sexes is of a deep brown or black-brown, with two strong, well-marked points or denticulations on the margin on each side; a little way also in front of the spinners are two round silvery spots, widely separated in a transverse line.

Adults of both sexes of this beautiful little Spider were received some years ago from the East Indies through the kindness of Mr. F. Bond. More recently I have received females from Ceylon (from Mr. G. H. K. Thwaites) and from Madagascar (through Mr. R. H. Meade, of Bradford). Three examples of the female were also contained in Prof. Traill's Amazons collection.

The genital aperture of the female is of a deep blackish colour, and is smaller than that of *A. nephilæ*. In almost every example it had an adventitious and more or less prominent process connected with it, of a bright transparent red hue, and apparently of a resinous nature; so that the real form of the vulva was not easy to be made out. This resinous process appears to be found in some other species also; and in one, *A. cognata*, Bl. (Seychelle Islands), it was taken by Mr. Blackwall to be a portion of the sexual process itself. It is, however, I think, certainly adventitious, and formed by an exudation, of the cause and nature of which we are ignorant.

ARGYRODES JUCUNDA, sp. n. (Plate XXVIII. fig. 6.)

Adult female, length to the spinners 2 lines, and from the spinners to the apex of abdomen $2\frac{2}{3}$ lines.

This Spider is nearly allied to *Argyrodes nephilæ*, Tacz., and others. It is, however, larger; and the apex of the abdomen is more drawn out and pointed, the abdomen itself being more elevated and perpendicular; it is of a silvery hue, the silver spots being divided by a network of dull brown lines. On the upperside a broadish central longitudinal black-brown stripe runs from the fore extremity two thirds of the way towards the apex, ending in a broad transverse somewhat crescent-shaped black-brown band, beyond each end of which is an irregular patch of the same. The underpart is black, the black portion extending up the sides in a large somewhat circular form, with a somewhat tapering stripe running upwards on each side of the spinners.

The *cephalothorax* is of ordinary form, and of a deep brown colour, the clypeus rounded and prominent.

The *legs* are moderately long, slender, 1, 2, 4, 3, and clothed with fine hairs; they are of a yellow-brownish hue; the femora and fore extremities of the tibiae of the first and second pairs deep brown, and all the tarsi and metatarsi pale brownish yellow.

The *palpi* are short, of a blackish colour; and each terminates with a rather long, slender, slightly-curved claw.

A single example of this Spider, which is nearly allied to *Argyrodes antipodiana*, Cambr., was received from Parana, South America, where it was found some years ago by Mr. Henry Rogers.

ARGYRODES ANTIPODIANA, sp. n.

Adult female, length $\frac{1}{6}$ of an inch.

This Spider is very nearly allied to *Argyrodes argentata*, Cambr., resembling it closely in general appearance, colours, and markings. In all the examples, however, that I have seen, the longitudinal black line on the upperside of the abdomen is stronger, and runs quite through to the apex of the hinder part; and in some examples there is a tendency to form one or more lateral oblique stripes running from the angular points of the upper margin of the underside towards the upperside; the apex of the abdomen is also more obtuse. In respect of the form of the abdomen, this species resembles *Argyrodes epeiræ*, Sim., very closely; and the variety of markings just now mentioned is also very like the less darkly marked varieties of that species; there is, however, in every one of the numerous females I have examined of *A. epeiræ*, a transverse dark bar or slender stripe on the upperside of the abdomen, a little way in front of the apex; and the central longitudinal stripe is always strong, but never runs through to the apex.

The genital aperture, although of the same general character, differs, though slightly, in all the three Spiders now compared; and I feel but little doubt that, when the male of *A. antipodiana* is discovered, it will be found that the form of the cephalothorax also differs in that sex from both the others mentioned. *A. epeiræ* is also apparently a larger Spider than the present one.

I have received examples of this Spider from Sydney, N. S. W. (from Mr. H. H. B. Bradley), and from New Zealand from Capt. F. W. Hutton.

ARGYRODES LUGENS, sp. n. (Plate XXVIII. figs. 2 a', b', c'.)

Adult female, length $1\frac{1}{2}$ line.

This Spider is nearly allied to *Argyrodes epeiræ*, Sim; the abdomen, however, is higher and sharper at the apex, and its pattern is quite different. In one respect only there is a similar portion of the pattern—namely, in the constant presence of a transverse black bar on the upperside, a little way in front of the apex; this bar is generally broader than in *A. epeiræ*; and in regard to the colouring of the abdomen, the dark portions are nearly or quite jet-black, whereas in *A. epeiræ* they are more of a very deep red-brown hue.

The present Spider is very variable in respect of its pattern, varying from an almost uniform brilliant silvery hue, marked only with a central longitudinal black stripe on the upperside, terminating in the transverse bar above noticed, and a black underside boldly denotated on its upper margins, to a uniform jet-black ground marked on the upperside with two parallel longitudinal silver stripes or bands,

tridenticulate on their outer sides, and a lateral, elongate, somewhat triangular silvery patch near the upper part on each side, the apex of the abdomen also being of a silvery colour.

This variety is the one figured (Plate XXVIII. figs. 2 *a'*, *b'*), and is a very striking and beautiful one: in most varieties the two ordinary silver spots underneath, in a transverse line in front of the spinners, are visible; but none were apparent in the variety figured.

In this variety also the legs are nearly black, softening to a dark brown towards their extremities, the metatarsi being pale yellow-brown. Other varieties, in which the silvery hues of the abdomen prevail, have the legs of a more or less dark yellow-brown, the fore extremities of the tibiæ of the first pair being black-brown, and the tarsi and metatarsi light yellowish brown. The legs are slender, furnished with fine hairs only; their length is moderate, those of the first pair, as usual, considerably the longest, and those of the third pair very short—1, 2, 4, 3.

The colour of the cephalothorax appears to vary with the general colouring of the legs and abdomen, the lighter-coloured examples having a more or less dark yellow-brown cephalothorax, while that of the dark examples is a deep black-brown.

Examples of this species were contained in the collection of Spiders sent to me from the Amazons by Professor Traill.

ARGYRODES ABSCISSA, sp. n. (Plate XXIX. fig. 7.)

Adult male, length to the spinners $1\frac{2}{3}$ line, and to the apex of the abdomen $2\frac{1}{4}$.

In the form of the fore part of the caput this Spider is not unlike *Argyrodes epeiræ*, Sim., with the lower prominence or lobe cut off near its base. This lobe has therefore a truncated appearance, and is much shorter and less robust than the upper one; its extremity is furnished thickly with strong prominent hairs forming a tuft; those of the upper lobe are less numerous, and, as usual, directed forwards; this latter lobe forms a strong subconical eminence rounded at its apex and protruding upwards from between the four central eyes, its base occupying the whole of the quadrate area comprised within them.

Looked at in profile, the caput rises gradually from the thorax, and there is a slight dip or depression between the eyes of the hind central pair. The thorax is more than usually gibbous just behind the thoracic indentation.

The colour of the *cephalothorax* is dark yellowish brown.

The *legs* are dull brownish yellow, the genual joints and a small portion at the fore extremity of the tibiæ and metatarsi of those of the third and fourth pairs being of a darker hue, giving those legs a slightly annulate appearance; they are long and slender, but not inordinately so, and are furnished with short fine hairs only.

The *palpi* are rather long and strong. The radial and cubital joints are of about equal length; both are strong, the latter bent and clavate, the former broad and dilated at the anterior extremity. The digital joint is rather large, strongly bifid at its extremity, and

of a dark yellow-brown colour. The palpal organs are tolerably complex, but compact, and, like those of most others of the genus, devoid of any very remarkable process.

The *falces*, *maxillæ*, *labium*, and *sternum* are of normal form and structure, and similar in colour to the cephalothorax.

The *abdomen* has its hinder extremity produced in an oblong form, the apex being a little dilated but slightly bifid, becoming somewhat of a fish-tail form; the length from the fore extremity to the spinners is a little less than that from the spinners to the apex. The colour of the abdomen is brownish black, marked, mottled, and speckled with pale yellowish-white and silvery spots and markings. The most conspicuous of the latter form two longitudinal slightly curved lines or bars along the fore part of the upperside, enclosing an oblong or somewhat coffin-shaped black-brown marking; also on the hinder part of each side, a little above the spinners, is a somewhat V-shaped marking formed in a similar way.

Two adult males of this very distinct Spider were contained in the small Madagascar collection received from Mr. R. H. Meade several years ago.

ARGYRODES FISSIFRONS. (Plate XXIX. fig. 8 a'.)

Argyrodes fissifrons, Cambr. Linn. Soc. Journ. Zool. x. p. 380, pl. xii. figs. 31-38; T. Thorell, Ann. Mus. Genov. xiii. p. 145 (1878).

Argyrodes inguinalis, T. Thorell, l. c. p. 149.

This Spider is nearly allied to the next Spider described, *Argyrodes procrastinans* (Plate XXIX. fig. 9); but the latter is, I feel no doubt, a distinct species, the form and markings of the abdomen (fig. 9, a) being different from many examples of the female of *A. fissifrons* received from Ceylon. I have, however, considerable doubt whether *A. inguinalis*, Thor., is distinct from *A. fissifrons*. Dr. Thorell (l. c.) says that, excepting in the genital process, he can find no reliable difference between the two species (the female only of *A. inguinalis* being known to him). The genital process is in almost all Spiders a point of structure of the first importance for the distinction of species; but with respect to *Argyrodes* I have not found it so reliable, as it is subject to great differences in external appearance, owing to the adventitious addition of the resinous-looking accretion mentioned above (p. 320). I am the more inclined to doubt the distinctness of Dr. Thorell's *A. inguinalis*, inasmuch as in an example he has kindly given me of it I observe traces of this accretion; and, excepting for this, there is no difference at all from my Ceylon examples of *A. fissifrons*. In one of the latter there is a similar disfigurement, which renders it quite undistinguishable from *A. inguinalis*.

Of the identity of Dr. Thorell's types (from Amboina) of *A. fissifrons*, and those I have received from Ceylon there is no doubt. The figure given (Plate XXIX. fig. 8 a') is from one of several examples kindly sent to me by Dr. Thorell. In the form of the apex of the abdomen the females differ considerably, some examples being drawn out into a much longer and more acute point than

others; but this part does not in any instance approach the form of that of *A. procrastinans*.

Both in Ceylon and Amboina *Argyrodes fissifrons* appears to be an abundant Spider.

ARGYRODES PROCRASTINANS, sp. n. (Plate XXIX. fig. 9.)

Adult female, length to the spinners $1\frac{2}{3}$ line, and to the apex of the abdomen $2\frac{1}{2}$ lines.

The *cephalothorax* of this Spider is of the ordinary form; the profile line lies pretty nearly level, though the occiput is a little gibbous and the thoracic indentation strong. Its colour is dull yellow-brown.

The *eyes* are in usual position. The four centrals form a square, round and near the base of a very slight rounded eminence. The clypeus exceeds in height half that of the facial space, and is a little prominent.

The *falces*, *maxillæ*, *labium*, and *sternum* present no special characteristics, their colour being similar to that of the cephalothorax.

The *legs* are long and slender, 1, 4, 2, 3. They are of a pale yellowish hue, the genual joints and a small portion at the extremity of the femora and tibiæ of those of the three anterior pairs being of a yellow-brown colour; their armature consists of fine hairs only.

The *palpi* are short, slender, of a darker colour than the legs, and terminate with a curved and (so far as I could determine) unpectinated claw.

The *abdomen* is large, and considerably produced at its posterior extremity, which is bluff and rounded. On each side, near the middle, the abdomen is somewhat enlarged, though scarcely amounting to a prominence; but halfway between that and the hinder extremity is a rather distinct rounded prominence, giving a somewhat trituberculate appearance to the end of the abdomen, and reminding one strongly of a very similar form in some exotic species of *Cyclosa*. The colour of the abdomen is a somewhat pale golden with a metallic lustre. Along the middle of the upperside is a broad dark black-brown; band, which becomes faint, interrupted at the middle, and almost obsolete a little past the lateral enlargement at the middle of the abdomen. The rounded apex of the abdomen is also black-brown; and the sides are encircled with a few spots, streaks, and patches of a similar hue. The spinners are placed on an eminence, the hinder half of which is black-brown and the fore part dull yellow-brown. The genital process is rather large, bluff, rounded and prominent, and of a bright shining red-brown colour, deepening to black in the middle; its anterior portion covers the aperture, and is of a hood-shape.

A single example of this Spider was contained in a collection kindly sent to me some years ago from Bombay by Major Julian Hobson, of the Bombay Staff Corps.

This species is nearly allied to *Argyrodes inguinalis* (Plate XXIX. fig. 9a'), Thor., a Spider found in Amboina, and included among the

synonyms of the foregoing species ; but although the present Spider resembles *A. inguinalis* very nearly in colours, markings, and the general character of the abdominal form, it may be easily distinguished by the more obtuse and rounded form and black colour of the apex. In *A. inguinalis* the apex is indeed obtuse and rounded ; but its tapering form is continued throughout, and its upper part and sides are completely silvery ; the central longitudinal band also on the fore part of the upperside is paler, and tapers without interruption to a fine point. There is considerable similarity, but still a difference, in the form of the genital process in the two species.

From *A. fissifrons*, Camb., ♀, the present Spider may also be distinguished by the same characters as those which distinguish it from *A. inguinalis*, Thor.

ARGYRODES AMBOINENSIS. (Plate XXIX. fig. 8.)

Argyrodes amboinensis, Thor. Ann. Mus. Genov. xiii. p. 141 (1878).

The length of the adult male is $2\frac{2}{3}$ lines to the spinners, and to the apex of the abdomen $3\frac{1}{4}$; the length of the female, to the spinners rather over 3 lines, and to the extremity of the abdomen 4 lines.

This fine and beautiful species has been well described by Dr. T. Thorell (*l. c. supra*). I have, however, thought it worth while to include here one or two figures, and also a note upon the very distinctive characters of the caput. In the absence of figures it is almost impossible to determine many of the Spiders of this group, in which the peculiar structure of the caput assumes so many forms differing from each other often in minute but important particulars.

The fore part of the caput is divided into two lobes by a deep and wide cleft ; the superior lobe is the smallest, and has the four central eyes on its upper side ; the inferior lobe projects considerably beyond the superior one, its extremity is subconical, and about half-way between the extremity and the base of the cleft there is, on the upperside, a strong subangular point clothed with a tuft of black hairs ; three strong sinuous bristles are directed forward from the fore extremity on the upperside of the superior lobe ; there are, besides these, numerous bristly hairs on and about both the lobes.

As in most others of this group, the *abdomen* differs in form in the two sexes. That of the male is longer in proportion, and has its hinder extremity produced into a strong, somewhat cylindrical form, rounded at its apex ; it is of a yellow-brown colour, ornamented with brilliant silvery markings edged in some parts with deep blackish brown, and disposed as in fig. 8. That of the female has these silvery markings of greater extent and better defined than in the male, and with many smaller silvery spots dispersed over the sides and hinder part *vide* (fig. 8).

The *legs* are exceeding long, slender, of a dull yellowish hue, coloured rather lighter than the cephalothorax, and furnished with fine hairs only.

The *palpi* of the male are long, and similar to the legs in colour ; the cubital joint is longer than the radial, curved and clavate ; the

digital joint is small; the palpal organs rather complex but compact.

Argyrodes amboinensis appears to be an abundant species in Amboina, and is perhaps the finest and handsomest yet known of this group; it is certainly one of the most distinct with respect to the form of the caput.

I am indebted to Dr. Thorell for the examples from which my figures and the above notes have been made.

ARGYRODES SCINTILLULANA, sp. n. (Plate XXIX. fig. 10.)

Length of the adult male $\frac{3}{4}$ line, and of the female $1\frac{1}{4}$ to $1\frac{3}{4}$.

The *cephalothorax* is of a deep brown colour; the fore part of the lower part of the caput is produced into a strong, prominent projection, which tapers gradually to a point, and, looked at in profile, has a slightly upward direction, being also furnished with prominent bristly hairs.

The *legs* are very slender; their relative length is 1, 2, 4, 3; those of the first pair are greatly the longest, being nearly four times the length of the Spider itself; they are of a pale yellow-brown hue, and furnished with short fine hairs.

The *palpi* are short, similar in colour to the legs; the radial and cubital joints are very short; the digital joint is also small, oval; and the palpal organs are compact, not very complex, and have a short, curved, spine-like process at their extremity, with a longer, curved transverse spine just behind it.

The *falces* are moderate in length and strength, and, with the maxillæ, which are of normal form, are similar in colour to the cephalothorax, the labium and sternum (also of normal form) being of a darker colour.

The *abdomen* is of a deep brownish sooty-black hue; the posterior extremity is greatly produced, ending in an obtuse and nearly round form. The profile forms an evenly ascending line from the fore to the hinder extremity; and the spinners are placed at an angle nearer to the former than to the latter. Looked at from above and behind, the upperside is marked with two oblique pale stripes on each side on the hinder half; each stripe is charged with a row of irregular silvery spots which sparkle like diamonds in different lights. When looked at in profile there are, besides the stripes of sparkling spots just noted, on each side, at the fore extremity, a shorter horizontal stripe of a similar kind, and a bold round sparkling silvery spot just above the spinners; near the middle of the underside, in a transverse line, there are also two other rather larger round spots of the same kind, and another just beneath the hinder extremity of the produced part.

The abdomen of the female is larger, but less long in proportion, its hinder extremity scarcely so obtuse, and sometimes of a cylindric form. The colours and markings of this sex, however, are the same as those of the male.

Adults of both sexes of this beautiful little Spider were received from Mr. G. H. K. Thwaites, from Ceylon, where they occur in the

webs of the larger Epeirids. This is, to my mind, the most delicately beautiful of all the hitherto known species of this pretty and curious genus.

ARGYRODES NASUTA, sp. n. (Plate XXIX. fig. 11.)

Adult male, length $1\frac{1}{2}$ line.

The *cephalothorax* of this Spider is yellow-brown, the normal grooves and indentations being of a deeper hue. The fore extremity of the lower surface of the caput is produced forwards, in a horizontal direction, into a long, strong projection, enlarged or somewhat spoon-shaped at its extremity, which is furnished with prominent hairs; the length of this projection, which is rather paler in colour than the cephalothorax, about equals the length of the caput.

The *eyes* are in the usual position; but the ocular area, though a little projecting, is not raised above the ordinary level. The profile of the upperside of the caput and thorax, excepting a small impression at the thoracic junction, forms a nearly straight, though slightly ascending line.

The *legs* are very slender, furnished only with short fine hairs; those of the first pair are much the longest, being about, or nearly, four times the length of the Spider; those of the second pair are rather longer than the fourth; and the third pair are the shortest. The legs are of a dull yellowish brown colour, paler than the cephalothorax.

The *palpi* are short, similar in colour to the legs, excepting the digital joints, which are of very large size and of a shining nearly black hue. The palpal organs are not complex, but very compact. The radial and cubital joints are both short, the former being the strongest.

The *falces* are long and moderately strong; they project a little forwards, and, with the maxillæ and labium, which are of normal form, are similar in colour to the cephalothorax.

The *sternum* is of the usual triangular shape, and is of a deep black-brown colour.

The *abdomen* has its hinder extremity greatly produced in a somewhat cylindric form, ending in an obtuse somewhat rounded form. Its colour is blackish brown, paler on the sides; it is marked on the upper part and sides with narrow white stripes, forming on the upperside a large, nearly diamond-shaped figure, and some oblique lines on the sides of the posterior half. The spinners occupy an angular position just halfway between the fore and hinder extremity of the abdomen.

Two examples of this curious Spider were contained in a collection received from Ceylon, from Mr. G. H. K. Thwaites, several years ago. In the form of the fore extremity of the lower surface of the caput we have the tendency to development in that part of the structure of this genus carried to the most extreme limit as yet known.

ARGYRODES BICORNIS, sp. n. (Plate XXIX. fig. 12.)

Adult male, length to the spinners 1 line, to the apex of abdomen rather more than $1\frac{1}{2}$ line.

It is perhaps questionable whether this Spider should not be included in the genus *Ariamnes* (Thor.) rather than in *Argyrodes*, the two genera being very closely united; believing it, however, to have more in common with the latter than with the former genus, I have, for the present at least, placed it in *Argyrodes*.

The form of the caput is very striking, and distinguishes it at a glance from all the Spiders of this singular group yet known to me. The posterior lobe (comprising the ocular area) has its centre produced into a strong, horn-like, slightly curved, tapering, obtusely-pointed eminence, directed forward, surmounted with a tuft of long, strong, bristly hairs also directed forwards; immediately below the fore central pair of eyes, at the upper part of the clypeus (which slopes considerably forwards), is another horn-like prominence directed forwards in a parallel direction with the other, and of about equal length but not nearly so strong, straight, and slightly enlarged at its extremity, which is also furnished with some long bristly hairs directed rather backwards, so as to meet those directed forwards from the extremity of the posterior horn.

The colour of the *cephalothorax* is pale yellow, with a suffusion of reddish brown on the margins, mostly on that of the thorax.

The *legs* are long and slender, especially those of the first pair; their relative length is 1, 2, 4, 3; and they are similar in colour to the cephalothorax; the tibiæ, tarsi, and metatarsi of those of the first and second pairs reddish yellow-brown. They are furnished pretty thickly with fine hairs, many of those on the tibiæ being erect.

The *palpi* are similar to the legs in colour, moderately long, the radial and cubital joints short and of equal length; the digital joint is rather small, oval, and yellow-brown, with a small notch or cleft at the extremity; the palpal organs are compact, and neither very prominent nor complex.

The *eyes* of the fore central pair form a line at least as long as the hind centrals, if not rather longer, and each is very near to, but not contiguous with, the fore lateral eye on its side. The four centrals thus form, as nearly as possible, a square.

The *falces* project considerably forwards, and, with the maxillæ, labium, and sternum, are similar in colour to the cephalothorax.

The *abdomen* has its upperside prolonged into a long tapering eminence directed a little backwards in a sloping form, the apex being bifid in a somewhat fish-tail form. It is of a dull whitish yellow-brown colour, indistinctly marked on each side at its anterior extremity with a rusty-red-brown hue, and with a suffusion of the same colour on the upperside towards and round the apex; some traces of a similar hue are also visible on the hinder part; and there is a central longitudinal line of the same on the underside.

It is very possible that a series of examples would show some variations in the colour and pattern of the abdomen.

A single adult male of this Spider in excellent condition was contained in Mr. H. Rogers's Parana collection. This is perhaps one of the most distinct and singularly formed species, with respect to the caput, yet known.

ARGYRODES SEXTUBERCULATA, sp. n. (Plate XXX. fig. 13.)

Adult male, length to the apex of the abdomen rather over 2 lines. Adult female slightly larger.

The *cephalothorax* is of a deep yellowish-brown colour; the legs and palpi reddish yellow-brown. The fore part of the caput is divided by a narrow fissure into two lobes of equal prominence, the inferior one being the strongest, rounded, consisting, in fact, of the whole of the lower part of the caput. This part bears some resemblance to the corresponding portion of *A. obtusa*, Cambr., but is less prominent, the upper lobe, however, being much more prominent.

The *eyes* are in the ordinary position; those of the hind central pair are divided by an interval but little if any thing larger than that which separates those of the fore central pair.

The *legs* are long and slender, 1, 2, 4, 3; those of the third and fourth pairs are paler than the others, and marked, or somewhat irregularly annulated, with reddish brown.

The *palpi* are short, the radial joint stronger and a little longer than the cubital; the digital joint is large but narrower, and not so large in proportion as that of *A. obtusa*; while the palpal organs are, though differing a little, very similar to those of that species.

The *falces* are long, strong, prominent near their base in front, and similar in colour to the cephalothorax.

The *abdomen* has its hinder extremity considerably prolonged in a somewhat oblong, very slightly tapering form; on each side towards the extremity is an angular prominence, whence it tapers more rapidly, ending in a somewhat truncated form, and with four small angular tubercles or prominences in the form of a square, two above and two beneath. The colour of the abdomen is a dark yellowish brown, more or less thickly covered with pale spots, a sort of longitudinal zone along each side from the lateral prominence to the fore extremity being of a silvery hue, the hinder part of the prominence being blackish-brown. A narrow central longitudinal, tapering, obscure darkish-brown stripe runs from the anterior margin of the upperside, ending in a fine point level with the lateral prominences.

The *abdomen* of the female is more completely covered with silvery spots than that of the male; it is shorter also, though preserving in a still more marked degree a similar form.

This species is allied both to *A. obtusa* and *A. amplifrons* (postea, p. 339); but the greater size and different form of the caput, palpi, falces, and abdomen, will serve to distinguish it readily.

Examples, in a very dilapidated state, were found among débris of web &c. in Prof. Traill's Amazons collection.

ARGYRODES ULULANS, sp. n. (Plate XXX. fig. 14.)

Adult male, length from the fore extremity of the caput to the spinners $1\frac{1}{4}$ line, and to the apex of the abdomen $2\frac{1}{2}$ lines; the corresponding measurements of the adult female are 2 and 4 lines.

The cephalothorax, legs, palpi, and falces are of a deep yellowish-brown colour. The legs are rather the palest, they are long and slender, 1, 2, 4, 3, and furnished with fine hairs. The fore part of the caput is divided into two lobes, like many others of the genus; but the form of the lobes is very distinct from that of any other species, and very characteristic. The inferior lobe is very strong, obtuse, and, looked at in profile, projects a little beyond the upper one, which is much smaller and transversely impressed just in front of the fore central pair of eyes. These lobes are, like the corresponding ones in other species, clothed with hairs, which are directed over the intervening cleft.

The *abdomen* is greatly produced backwards, tapering to a blunt conical point; its length from the spinners to the apex is nearly or quite double that from the spinners to the cephalothorax. It is of a dull sooty-black hue, deepening to the apex; the upper part is bordered on each side by a broad longitudinal silvery band, which does not, however, nearly reach the apex; and close behind the spinners, underneath, are two silvery spots in a transverse line.

The *palpi* are moderately long; the radial and cubital joints are rather short, and of very nearly equal length; the digital joint is large, oval, and devoid of the strong process near the extremity characteristic of that of *Argyrodes epeiræ*, Sim., and several others. The palpal organs are compact and moderately complex, but do not present any very conspicuously prominent processes.

The female is larger, and its abdomen stouter; but in colours and markings the sexes are remarkably alike.

Examples of this species were contained in Prof. Traill's Amazons collection.

ARGYRODES MINAX, sp. n. (Plate XXIX. figs. 15, *c*, *d*, *e*, 15 *a*, 15 *b*.)

Adult male, length to the spinners $1\frac{1}{3}$ line, and to the apex of the abdomen 2 lines.

In the form of the caput this Spider is very like the next species (*Argyrodes affinis*, Cambr.). In both Spiders the clypeus is prominent, and divided by a distinct transverse cleft, almost amounting to a simple perforation, so nearly do the adjacent margins of the two segments meet. The present Spider, however, may be distinguished at once by the greater and more gradual rise of the caput from the thoracic region, and by the cleft above mentioned dividing the clypeus into two equal parts, whereas in *A. affinis* it is placed close beneath the fore central eyes (Plate XXX. fig. 16 *b*). A comparison of the figures given of the two Spiders will render this apparent at a glance.

The cephalothorax, legs, palpi, falces, and other anterior parts are yellow-brown, the legs and palpi being rather the lightest in colour.

The *eyes* of the hind central pair are further from each other than each is from the hind lateral eye on its side; those of the anterior row are as nearly as possible equidistant from each other.

The *legs* are long and slender, those of the first pair (judging by the femora, which are all that remained of them) of great length. Their armature consists, as usual, of fine hairs only.

The *palpi* are moderately long; the digital joints are rather large, oval, and dark yellowish brown; the palpal organs are moderately complex, but compact; the cubital joint is curved and clavate, and longer than the radial.

The *abdomen* is long, narrow, and slightly tapering to the apex, which is bluff and rounded; and on each side a little before the apex is a small obtusely angular prominence. The general colour of the abdomen is yellowish brown, marked above and on the sides with silvery spots and suffusions; along the middle of the upperside is a long tapering deep-blackish-brown marking, whose posterior extremity, narrowed to a line, reaches very nearly to the apex. The most conspicuous of the silvery markings on the sides form two somewhat irregular oblique lines, the hinder one of which ends in a single spot a little way above and behind the spinners. The area from the spinners to the apex is dark brown; and a little way below the apex are two silvery spots in a transverse line. In the form of the abdomen there is, as will be observed, a striking difference between this species and *A. affinis*.

A single example of the adult male of this very distinct Spider was contained in a small collection of Spiders from the north-east of Madagascar, kindly given me by Mr. R. H. Meade.

Argyroides minax is also nearly allied to *A. ululans*, Cambr. (an Amazons species); but in this latter the transverse cleft of the caput is much deeper, and the form of the segments into which the clypeus is divided is different; the form also of the abdomen is quite dissimilar.

ARGYRODES AFFINIS, sp. n. (Plate XXX. figs. 16, 16 *b*, 16 *c*, 16 *e*).

Adult male, length to the apex of the abdomen $2\frac{1}{3}$ lines, and to the spinners $1\frac{1}{4}$.

This species is allied to *Argyroides obtusa* and *A. amplifrons*, from both of which it may easily be distinguished by the greater elevation of the hinder part of the ocular area, as well as by the much wider separation of the hind central pair of eyes, and greater width of the upperside of the caput, the prominence of the lower lobe of which is not so bold nor so extended. The abdomen is also of a different form, and its pattern different. The figures detailing these characters will show at once the differences here noted.

The *cephalothorax* is of a yellow-brown colour; the hinder part of the ocular area is a little raised, giving in profile a slightly angular form to the occiput.

The *legs* are of normal character, long and slender, 1, 2, 4, 3, and furnished only with fine hairs.

The transverse cleft dividing the two lobes of the caput is placed as nearly as possible halfway between the hind central eyes and the prominent extremity of the lower lobe.

The *palpi* are short, and similar in colour to the legs; the cubital joint is curved, clavate, and perceptibly longer than the radial, which, like that of other species, is broad in front. The digital joint is of moderate size, oval, dark yellow-brown in colour. The palpal organs are simple, compact, and very like those of several other species.

The *abdomen* has its posterior portion drawn out into a long tapering form; there is a small angular prominence on each side, a little more than halfway to the apex, which last is obtusely pointed and depressed, or a little bent downwards. This downward bend is probably a characteristic of the species, though very possibly not equally strongly marked in all individuals; it is very perceptible in all the examples I have examined (two adult and one young male, and one adult female). The colour of the abdomen is yellow-brown, mostly covered with brilliant and closely united silvery spots, leaving (in the male) an elongate, central tapering stripe on the upperside. The lower part of the sides, as well as the underside, are nearly free from silvery spots; two, however, are tolerably conspicuous in a transverse line on the hinder part, a little way above the spinners.

In the female the abdomen is shorter, the angular prominence on each side stronger, and it is more completely covered with silvery spots; the disposition, however, of those on the upperside leaves a rather distinct pattern (represented in fig. 16, *d*); probably there would be various differences in this in different examples. The only female that has come under my notice was considerably smaller than the male.

Four examples were contained in a collection of Spiders made for me on the Parana, Brazil, by Mr. H. Rogers, some years ago.

ARGYRODES OBTUSA, sp. n. (Plate XXX. fig. 17.)

Adult male, length to the apex of the abdomen $1\frac{1}{4}$ line, to the spinners rather less than 1 line.

In this very pretty and curious little Spider, the upper part of the caput is not elevated or drawn out beyond the normal extent, but the whole of the lower part is produced into a very large, obtuse, rounded lobe or prominence divided by a short but distinct cleft or perforation from the upper part of the caput; when looked at from in front, the middle of the upper part of this prominence is slightly notched or cleft.

The colour of the *cephalothorax* is pale yellow-brown, that of the legs and palpi being of a rather paler hue.

The *legs* in the examples examined were much damaged; but they appeared to be very like those of other species of this genus, long, 1, 2, 4, 3, slender, and clothed only with very fine hairs.

The *palpi* are rather short, the cubital and radial joints particularly so; the digital joint is large, and in form very like that of *A. ululans*, being devoid of the prominence so very strongly marked in *A. epeiræ* and others. The palpal organs are simple in structure, but prominent and well developed, with a short, closely fitting, curved black spine near their anterior extremity.

The *eyes* are in the ordinary position; those of the hind central pair are separated by a wider interval than those of the fore central pair.

The *falces* are neither very long nor strong; and their direction is a little forwards.

The *abdomen* has its upper part produced backwards into a long, somewhat tapering form, its extremity being slightly and imperfectly trifid, *i. e.* a blunt angular point on each side below, and a third, rather longer, above and directed rather downwards; its ground-colour is of a dull brownish hue (though, the examples being in bad condition, this may be different in life), marked with a pattern of brilliant silvery spots as represented in fig. 17; the hinder part of this pattern meets over the upperside; there is also a single conspicuous silvery spot almost underneath on each side near the hinder extremity, and another in the middle of the underside a little way in front of the spinners.

One tolerably perfect example, and some fragments of others, were found among débris of the web of some large Epeirid, in Prof. Traill's Amazons collection.

ARGYRODES AMPLIFRONS, sp. n. (Plate XXX. figs. 17 *a'*, *d'*, *e'*, 17 *b'*, *c'*, *d'*, *e'*, *f'*, *g*, *h*.)

Adult male, length to the spinners scarcely 1 line, and to the apex of the abdomen $1\frac{1}{2}$; in the adult female these measurements are, respectively, $\frac{4}{5}$ of a line and rather more than $1\frac{1}{2}$ line.

This Spider is very nearly allied to *Argyrodes obtusa*, but may be distinguished by several well-marked differences. The prominence of the lower part of the caput (or inferior lobe) is much larger, still more obtuse; and its upper part, when looked at from in front, is more considerably cleft or bifid; the space also between the cleft or perforation which divides the lobe and the fore central eyes is more prominent. The abdomen is more elongated, and more distinctly trifid at its apex; and the silvery markings are merely two small patches of spots on each side, a small spot on each side rather underneath near the apex, another in the middle of the underside a little way in front of the spinners, and two more in a transverse line behind them.

The *palpi* are very like those of *A. obtusa*; and the general colouring and appearance of the whole Spider is also very similar.

The female has the anterior part of the abdomen much more tumid, more perpendicular in its direction, and its apex more conspicuously trifid; its whole surface is silvery, excepting a longitudinal, not very distinctly defined, central longitudinal band on the upperside extending quite to the apex, and a pointed stripe on the

hinder part of each side, leaving a broad silvery band from the apex to the spinners.

Examples, for the most part much damaged, were found in Prof. Traill's Amazons collection in company with those of *A. obtusa*.

ARGYRODES INFELIX, sp. n. (Plate XXX. fig. 18.)

Adult female, length to the spinners $1\frac{1}{3}$ line, and to the apex of the abdomen very nearly 2 lines.

The *cephalothorax* is of a very flattened convex form above; the ocular area is a little elevated, and the clypeus (which in height is no more than half that of the facial space) is rather prominent; the profile line of both the caput and thorax is very level, and forms but a very slight curve; the ordinary lateral converging indentations are obsolete, and the thoracic indentation is but very slightly marked. The surface of the whole is roughened or granulose, covered with small impressed points, and clothed with pale coarse hairs; its colour is yellow-brown.

The *eyes* are in the ordinary position; the four centrals form a square, those of the hind central pair are slightly closer to each other than each is to the hind lateral eye on its side, while the intervals between those of the anterior row appeared to be equal to each other.

The *falces*, *maxillæ*, *labium*, and *sternum* are of normal form, and similar to the cephalothorax in colour.

The *legs* are moderately long, slender, 1, 2, 4, 3, rather paler in hue than the cephalothorax, and clothed with rather long coarse hairs.

The *palpi* are short and slender; they resemble the legs in colour, are similar in their armature, and terminate with a curved claw.

The *abdomen* has its posterior extremity produced in a tapering form to an obtusely conical apex. It is of a dull luteous yellow-brown hue, with some faint traces of red-brown markings on the upper-side, and thinly clothed with coarse hairs; the plates of the spiracles are reddish yellow-brown; and the genital aperture is small, inconspicuous, and has no process connected with it.

A single example of this species was contained in Prof. Traill's Amazons collection. Although it presents some rather abnormal characters, I consider it to belong to the genus *Argyroides*. Probably the abdomen, in the only example before me, had lost its real colour; and its markings had perhaps become obliterated; still the peculiar characters furnished by the form and surface of the cephalothorax will hardly fail to enable the species to be easily determined.

ARGYRODES FELIX, sp. n. (Plate XXX. fig. 19.)

Adult female, length to the extremity of the abdomen $2\frac{1}{4}$ lines, and to the spinners $1\frac{1}{2}$.

The cephalothorax, legs, palpi, and falces of this pretty Spider are yellow-brown. The legs are moderately long, 1, 2, 4, 3, and furnished with fine hairs only.

The *abdomen* is large, and of a somewhat imperfectly globular form ; on each side, towards the hinder extremity of the upper part, is a small subconical eminence ; and the hinder extremity itself ends with three larger, subconical, nipple-like protuberances, two in a transverse line below and one in the middle above ; the under ones are the longest, and a little divergent from each other. The colour of the abdomen is dark blackish brown, with a broad longitudinal band along the upperside, pointed in front and of a pale yellow-brownish hue ; this band includes the posterior prominences, and emits a prominent stripe of a similar colour on each side a little in front of the middle, and also has along its centre two black patches, of a somewhat diamond-shape ; the anterior patch fits pretty closely into the fore extremity of the band, and is sometimes lost in connexion with the surrounding ground-colour. On each side of the abdomen near its hinder extremity, and beginning at the subconical eminence above noted, another pale yellowish-brown stripe runs downwards and a little obliquely backwards towards the spinners, above which, and in a line with the oblique stripe, is a circular spot or patch of a similar colour. The hinder part of the abdomen is sometimes marked with a similarly coloured band running downwards towards the spinners. Also on each side of the fore extremity of the abdomen, a little above the junction with the cephalothorax, is another, short, rather oblique band or patch of pale yellowish brown, its hinder extremity ending in a largish circular spot. All these pale markings are ornamented with brilliant silvery blotches and spots, two others of which are also conspicuous in a transverse line on the underside a little way in front of the spinners.

Three female examples of this very distinct species were contained in a collection of Spiders made for me in Brazil (Parana) by Mr. Henry Rogers.

ARGYRODES NIGRA, sp. n. (Plate XXX. fig. 20.)

Adult male, length $1\frac{1}{2}$ line ; female $1\frac{2}{3}$.

The cephalothorax, legs, palpi, falcēs, maxillæ, labium, and sternum of this species are deep black-brown, excepting the two basal joints and a small portion of the posterior extremity of the femora of the legs, which are pale whitish yellow—the abdomen being quite black, without markings of any kind.

The middle of the ocular area is prominent ; but the lower part of the fore extremity of the caput is devoid of any prominence or protuberance. The eyes of the fore central pair are larger and wider apart than those of the hind central pair ; in other respects the eyes do not appear to differ from those of the typical species of *Argyrodes*. The relative length of the legs is 1, 4, 2, 3, thus differing from that of other *Argyrodes* ; the maxillæ also are rather less strong, more pointed at their extremity, and inclined perceptibly towards the labium ; the legs are furnished with longish pale hairs, both erect and semi-erect.

The *palpi* are slender and moderately long ; the radial and cubital joints are very short ; the digital joint is very large ; and the

palpal organs, which are rather simple in structure, are surrounded on their outer side by a long, strong, corneous, spine-like process, which originates at their centre, and whose obtuse extremity projects beyond the extremity of the digital joint.

The *abdomen*, looked at from above and behind, is elongated narrow oviform, more or less pointed at its posterior extremity; seen in profile, the normal hinder part is produced into a long, slightly curved, tapering prolongation, the spinners being generally nearer to the fore extremity of the abdomen than to the point of elongation.

The female resembles the male in colours, excepting the legs, which are of a uniform pale whitish yellow, the palpi being black-brown; the abdomen also is shorter, but very broad at its fore extremity.

It is with some hesitation that I have described this Spider as an *Argyrodes*. Numerous examples of both sexes were included in Mr. Thwaites's Ceylon collection.

List of Species above noted and described, with references to locality, page, plate, and figures.

- Argyrodes flavescens*, sp. n., p. 321, Pl. XXVIII. fig. 1. Ceylon.
- *concinna*, sp. n., p. 322, Pl. XXVIII. fig. 2. Amazons.
- *epaire*, Sim., p. 323, Pl. XXVIII. fig. 3 a. S. Europe and Madagascar, Asia and Africa.
- *samoensis*, sp. n., p. 323, Pl. XXVIII. fig. 3. Samoa Islands.
- *nephilæ*, Tacz., p. 324, Pl. XXVIII. figs. 4, 4 a, 4 b, c, 4 c, 4 d, f. Amazons.
- *argentata*, sp. n., p. 325, Pl. XXVIII. fig. 5. Amazons, Ceylon, Madagascar, and East Indies.
- *rostrata*, Bl., p. 325, Pl. XXVIII. figs. 4 a', 4 b'. Seychelle Islands.
- *juvunda*, sp. n., p. 326, Pl. XXVIII. fig. 6. Parana, S. America.
- *antipodiana*, sp. n., p. 327. Australia and New Zealand.
- *lugens*, sp. n., p. 327, Pl. XXVIII. figs. 2 a', b', c'. Amazons.
- *abscissa*, sp. n., p. 328, Pl. XXIX. fig. 7. Madagascar.
- *fissifrons*, Cambr., sp. n., p. 329, Pl. XXIX. fig. 8 a'. Ceylon, Amboina.
- *procrastinans*, sp. n., p. 330, Pl. XXIX. fig. 9. Bombay.
- *inguinalis*, Thor., p. 330, Pl. XXIX. fig. 9 a'. Amboina.
- *amboinensis*, Thor., p. 331, Pl. XXIX. fig. 8. Amboina.
- *scintillulana*, sp. n., p. 332, Pl. XXIX. fig. 10. Ceylon.
- *nasuta*, sp. n., p. 333, Pl. XXIX. fig. 11. Ceylon.
- *bicornis*, sp. n., p. 334, Pl. XXIX. fig. 12. Parana, S. America.
- *sextuberculata*, sp. n., p. 335, Pl. XXX. fig. 13. Amazons.
- *ululans*, sp. n., p. 336, Pl. XXX. fig. 14. Amazons.
- *minax*, sp. n., p. 336, Pl. XXIX. figs. 15, 15 a, 15 b. Madagascar.
- *affinis*, sp. n., p. 337, Pl. XXX. figs. 16 a, d, j, k, f, g, 16 b, 16 c, 16 e. Parana.
- *obtusa*, sp. n., p. 338, Pl. XXX. fig. 17. Amazons.
- *amplifrons*, sp. n., p. 339, Pl. XXX. figs. 17 a', d', e', 17 b', c', d', e', f', g, h. Amazons.
- *infelix*, sp. n., p. 340, Pl. XXX. fig. 18. Amazons.
- *felix*, sp. n., p. 340, Pl. XXX. fig. 19. Parana.
- *nigra*, sp. n., p. 341, Pl. XXX. fig. 20. Ceylon.

EXPLANATION OF THE PLATES.

PLATE XXVIII.

- Fig. 1. *Argyrodes flavescens*, sp. n.
a, ♂ in profile; *b*, ♀ in profile; *c*, abdomen (♀) on upperside;
d, right palpus on outer side; *e*, length of ♀; *f*, length of ♂.
2. *Argyrodes concinna*, sp. n., Spider in profile.
a, length to spinners; *b*, length to apex of abdomen.
- 2 *a'*. *Argyrodes lugens*, sp. n., Spider in profile.
b', abdomen on upperside; *c'*, Spider, natural size.
3. *Argyrodes samoensis*, sp. n., Spider in profile.
a, natural length.
- 3 *a*. *Argyrodes epeira*, Sim., portion of Spider in profile.
b, natural length of Spider.
4. *Argyrodes nephila*, Tacz., Spider in profile (♂).
4 *a*, abdomen (♀) in profile; 4 *b*, abdomen (♂) on upperside; *c*,
genital process of ♀; 4 *c*, abdomen (♀) on upperside; 4 *d*, ♂ Spider
from above, with legs and palpi cut off; *f*, natural length of Spider
(♂).
- 4 *a'*. *Argyrodes rostrata*, Bl., caput in profile.
4 *b'*, Spider in profile.
5. *Argyrodes argentata*, sp. n., Spider (♂) in profile.
a, abdomen (♂) on upperside; *b*, abdomen (♀) in profile; *c*,
natural length of Spider (♂).
6. *Argyrodes jucunda*, sp. n.
a, Spider in profile; *b*, abdomen on upperside; *c*, caput in profile;
d, Spider in profile, natural size.

PLATE XXIX.

- Fig. 7. *Argyrodes abscissa*, sp. n., Spider in profile.
a, cephalothorax in profile, more enlarged; *b*, caput from in front;
c, abdomen on upperside; *d*, length of Spider to the spinners; *e*,
length of Spider to the apex of abdomen.
8. *Argyrodes amboinensis*, Thor.
a, Spider (♂) in profile; *b*, caput in profile, more enlarged; 8 *c*, ab-
domen (♀) in profile; *d*, length of ♂ to spinners; *e*, length of ♂ to
apex of abdomen; *f*, length of ♀ to spinners; *g*, length of ♀ to apex
of abdomen.
- 8 *a'*. *Argyrodes fissifrons*, Camb., cephalothorax of Spider (♂) in profile.
9. *Argyrodes proerastinans*, sp. n., Spider in profile.
a, abdomen on upperside; *b*, length to spinners; *c*, length to extre-
mity of abdomen.
- 9 *a'*. *Argyrodes inguinalis*, Thor., abdomen on upperside.
10. *Argyrodes scintillulana*, sp. n.
a, Spider in profile; *b*, length of ♂; *c*, length of ♀ to extremity
of abdomen, and to spinners.
11. *Argyrodes nasuta*, sp. n.
a, Spider in profile; *b*, caput from above; *c*, profile of caput, more
enlarged; *d*, length of Spider to extremity of abdomen.
12. *Argyrodes bicornis*, sp. n., Spider in profile.
a, profile of cephalothorax; *b*, abdomen, upperside; *c*, length of
Spider to spinners; *d*, length of Spider to apex of abdomen.
15. *Argyrodes minax*, sp. n., Spider in profile.
c, abdomen on upperside; *d*, length of Spider to spinners; *e*, length
of Spider to extremity of abdomen; 15 *a*, profile of cephalothorax;
15 *b*, caput from in front.

PLATE XXX.

- Fig. 16. *Argyrodes affinis*, sp. n., Spider (♂) in profile.
a, caput (♂) from in front; *d*, abdomen (♀), upperside; *j*, length

of ♀ to spinners; *h*, length of ♀ to extremity of abdomen; *f*, length of ♂ to extremity of abdomen; *g*, length of ♂ to spinners; 16 *b*, profile of cephalothorax; 16 *c*, abdomen of ♂ on upperside; 16 *e*, abdomen of ♀ in profile.

Fig. 17. *Argyrodes obtusa*, sp. n., Spider in profile.

b, profile of cephalothorax; *c*, caput from in front; *j*, length of Spider to extremity of abdomen; *k*, length of Spider to spinners.

17 *a'*. *Argyrodes amplifrons*, sp. n., Spider in profile.

d', length of Spider to spinners; *e'*, length of Spider to extremity of abdomen; 17 *b'*, profile of cephalothorax; *e'*, caput from in front; *d'*, profile of spider (♀); *e'*, extremity of abdomen (♂); *f'*, extremity of abdomen (♂), from below; *g*, length of ♀ to spinners; *h*, length of ♀ to extremity of abdomen.

13. *Argyrodes sextuberculata*, sp. n., Spider in profile.

a, profile of cephalothorax; *b*, abdomen from above; *c*, length of Spider to extremity of abdomen.

14. *Argyrodes uhulans*, sp. n., Spider in profile.

a, profile of caput; *b*, caput from in front; *c*, length of Spider (♂) to spinners; *d*, length of Spider (♂) to extremity of abdomen; *e*, length of ♀ to extremity of abdomen; *f*, length of ♀ to spinners.

18. *Argyrodes infelix*, sp. n., Spider in profile.

a, abdomen on upperside; *b*, length of Spider to spinners; *c*, length of Spider to extremity of abdomen.

19. *Argyrodes felix*, sp. n.

a, Spider in profile; *b*, length of Spider to spinners; *c*, length of Spider to extremity of abdomen.

20. *Argyrodes nigra*, sp. n.

a, Spider in profile; *b*, Spider in profile, from upperside; *c*, length to spinners; *d*, length to extremity of abdomen.

4. On the Shells of Lake Tanganyika and of the Neighbourhood of Ujiji, Central Africa. By EDGAR A. SMITH.

[Received April 6, 1880.]

(Plate XXXI.)

In the year 1877 I had the pleasure of communicating to the Society a paper on the shells found in Lake Nyassa. It is now my privilege to lay before it an account of the known mollusks inhabiting another of the large African lakes, namely Tanganyika.

Mr. Edward Coode Hore, of the London Missionary Society's Tanganyika Mission, stationed at Ujiji, sent a collection of shells to his brother, Mr. John Coode Hore; and the latter has liberally presented them to the British Museum in his brother's name.

The only shells hitherto recorded from this particular region were collected by Captain Speke some twenty years ago, and described in these 'Proceedings' (1859) by Mr. S. Woodward; they were four in number, viz. *Pleiodon spekei*, *Lithoglyphus zonatus*, *Melania nassa*, and *Unio burtoni*. The last of these is the only form not included in Mr. Hore's collection.

The latter comprises twenty-one species, nine of which are new and interesting forms. Of these I would particularly call attention to *Tiphobia horei* and *Neothauma tanganyicensis*, both of which are new